

San Mateo County

2008 WMA Base Funding Work Plan

Member of the San Mateo WMA

January 1, 2009 – December 31, 2009

Contract Lead Group and Contact Person(s) (name, phone number, email, and address):

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Please Confirm. If selected, all projects described in this proposal will be in 1 contract with San Mateo County:

Confirmed, 1 contract with San Mateo County.

Proposed Projects

Project #1: Stulsaft Park Noxious Weed Outreach and Control

Project Objectives: Stulsaft Park in Redwood City Park has a high diversity of native plant life including rare, threatened and endangered plant species. Acterra's work at Stulsaft Park focuses on outreach and education as well as controlling noxious weeds to protect the riparian, grassland and oak woodland habitats of the park.

Stulsaft Park contains endangered *Cirsium fontinale* var. *fontinale* (Fountain Thistle), threatened *Hesperolinon congestum* (Marin Dwarf-flax) and *Allium peninsulare* var. *franciscanum* (Franciscan Onion) listed as a rare plant by the California Native Plant Society. The Fountain Thistle at Stulsaft is being directly threatened by a growing population of *Arundo donax*. The park also contains important serpentine habitat, including the seeps supporting the Fountain Thistle, and grassland with both Purple and Foothill Needle grass.

Specific objectives include:

- I. Coordinate volunteer restoration events with the volunteers from the community, including the local middle school, to remove noxious weeds, especially in sensitive habitats. These events will include:
 - a. Remove *Arundo donax* from in and near the colony of Fountain Thistle.
 - b. Remove ivy from trees and understory in the oak woodland.
 - c. Remove French Broom, Pampas, Privet, Black Acacia and Himalayan blackberry from the riparian habitat where practical to do so with volunteer labor.

II. Conduct outreach to students and the general public

- a. Create program to educate and enlist volunteers from the community to help with restoration and education efforts.
- b. Make presentations at the local middle school on the importance of native habitat and restoration.
- c. Work with students to create interpretive signage about the hazards of landscaping with noxious weeds, and promoting habitat protection and restoration.

Tools:

Three weed wrenches and six pruning saws are needed. Other supplies needed include signage, and training materials (e.g., color copies of weed ID guides).

Mapping:

All areas treated will be displayed on a map that will be submitted to all WMA partners and CDFA at the completion of the project.

Reporting:

A project report will be submitted at the completion of the contract and will include the following information: area and weight of plants removed, before and after photographs, a description of outreach efforts, and images of the created signage.

Project #2: Seed banking of fountain thistle and propagation of tufted hair grass for the purpose of habitat restoration and species recovery

Project Objectives:

Fountain thistle (*Cirsium fontinale* var. *fontinale*) is a state and federally listed endangered species that has been extirpated from much of its unique serpentine seep and wetland habitat as a result of urban development and invasion of exotic plants, particularly by jubatagrass (*Cortaderia jubata*). The objective of this project is to protect fountain thistle through a variety of conservation actions that include collecting and preserving seeds and restoration of habitat, with the long-term goal of reintroducing fountain thistle into all suitable habitat. There are presently nine known populations of this species on the San Francisco Peninsula, of which six occur in the watersheds of the San Francisco Public Utilities Commission (SFPUC).

Because of its unique habitat requirements, the protection and restoration of all sites known to support fountain thistle will be essential to its conservation and recovery. All of these known sites are threatened by encroachment by jubatagrass, giant reed (*Arundo donax*) or other non-native invasive plants.

The SFPUC, over the course of several years, has been progressively eradicating jubatagrass in fountain thistle habitat in SFPUC watersheds. However, cleared habitat is subject to reinvasion by jubatagrass and invasion by a number of other weeds, including sow thistle and bull thistle.

In addition to the SFPUC populations, a fountain thistle population also occurs on CalTrans land at the intersection of Highways 92 and 280, close to one of the SFPUC populations. This serpentine seep habitat has been invaded by jubatagrass, resulting in the near extirpation of the fountain thistle population. As part of the Golden Gate National Recreation Area Big Year for Endangered Species, CalTrans sprayed the jubatagrass with glyphosate and Big Year volunteers have been participating in habitat restoration activities.

The SFPUC, in collaboration with the San Bruno Garden Project, CalTrans, the California Native Plant Society, and other volunteers, will control jubatagrass where it has invaded the habitat of fountain thistle. Fountain thistle seeds will be collected for seed banking, to protect populations from possible loss due to catastrophic events and potentially as a seed source for future propagation for habitat restoration.

It is proposed that seeds be collected from all SFPUC fountain thistle populations, collecting no more than 5% of the seeds from any given population. The seeds will be sent to a seed bank certified by the Center for Plant Conservation, such as that at the Rancho Santa Ana Botanical Garden.

Seeds will also be collected of tufted hairgrass (*Deschampsia cespitosa* subsp. *cespitosa*), a native bunchgrass that associates with fountain thistle at most of its locations. *Deschampsia* grows in the same serpentine seep and wet

meadow habitat as fountain thistle, and fountain thistle naturally occurs in the open spaces between grass clumps. By growing and planting out *deschampsia*, fountain thistle habitat will be reclaimed from jubatagrass, and cleared ground will be protected from reinvasion by jubatagrass and other weeds.

The San Bruno Garden Project, a non-profit organization involved in environmental education, will propagate *deschampsia* in its nursery from seeds collected in fountain thistle habitat. The *deschampsia* plants will then be planted in habitat cleared of jubatagrass. This will be done in coordination with CalTrans and with the help of volunteers from the California Native Plant Society and other organizations.

The consulting services of a professional conservation biologist will be used to guide future restoration work. The consultant will provide general recommendations on fountain thistle recovery and adaptive management, consistent with the 1998 Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area of the U.S. Fish and Wildlife Service (http://ecos.fws.gov/docs/recovery_plans/1998/980930c.pdf).

It is expected that the result of this project will be the eventual recovery of the CalTrans fountain thistle site and also of SFPUC populations impacted by jubatagrass invasion.

Equipment:

Seed collection bags and seed envelopes, labels and markers, nursery containers and potting soil, fertilizer and other nursery supplies.

Mapping:

See the accompanying map of fountain thistle populations from the report *Special Status Vascular Plant Species Monitoring Report, San Francisco Watershed District* prepared for the Golden Gate National Recreation Area in 2001 by Brent Johnson and Lara Cushing.

Seed collection locations will be determined by recording GPS coordinates. Fountain thistle populations are currently being mapped in the field by SFPUC. Maps of collection and restoration sites will be provided to CDFA.

Reporting:

A project report will be submitted at the completion of the contract and will include the following information: net acres or number of plants treated if less than 100 plants, gross area surveyed, control tool utilized, % change (reduction) between visits, graphs showing differences in acres treated between years for each species addressed, and photographs.

Project #3: Application of the herbicide imazapyr to test for efficacy in the control of jubatagrass

Project Objectives:

The San Francisco Public Utilities Commission (SFPUC) will test the efficacy of the herbicide imazapyr (BASF Habitat and BASF Stalker) for the control of jubatagrass (*Cortaderia jubata*). The efficacy will be compared with that of glyphosate. Depending upon the results, this may lead to a more extensive collaborative inter-agency control project for jubatagrass on Montara Mountain and elsewhere.

In the SFPUC Peninsula watersheds, jubatagrass has proven especially difficult to control. At present, plants are being controlled primarily through the use of the herbicide glyphosate. However, there are limitations to its effectiveness. Although glyphosate generally results in 80% jubatagrass control, re-growth will almost invariably occur the following summer (Drewitz and DiTomaso 2000. California Exotic Pest Plant Conference abstract). In contrast, a low-volume application of the herbicide imazapyr gave approximately 95% control with no re-growth the following year. Because of this greater efficacy, imazapyr is being used by the National Park Service to control jubatagrass growing on steep coastal bluffs in Point Reyes National Seashore and in the Santa Monica Mountains National Recreation Area. Imazapyr is also used as a control option at the Elkhorn Slough National Estuarine Research Reserve near Moss Landing.

Another advantage of imazapyr is that it can be applied at a lower volume than glyphosate. With glyphosate, a higher volume is usually required because complete coverage is required to kill each individual tiller. It has been found that imazapyr will translocate between tillers, allowing for a low-volume application and no requirement for thorough coverage.

It is proposed that imazapyr be evaluated for its efficacy of control against jubatagrass in tests on randomly selected plants. Similarly randomly selected plants will be treated with high-volume and low-volume glyphosate applications, and these will be compared with each other and non-treated controls.

Equipment:

Backpack sprayer, imazapyr (in the form of Habitat or Stalker) and spray adjuvant.

Mapping:

Treated and control jubatagrass plants will be tagged with an identification number, and the locations of plants will be recorded both by GPS coordinate and by field mapping on topographic maps or aerial photographs.

Reporting:

A project report will be submitted at the completion of the contract and will include the following information: net acres or number of plants treated if less than 100 plants, gross area surveyed, control tool utilized, % change (reduction) between visits, graphs showing differences in acres treated between years for each species addressed, and photographs.

Project #4: French Broom Eradication to protect habitat for endemic Montara Mountain blue bush lupine (*Lupinus eximus*)**Project Objectives:**

The Peninsula Open Space Trust will restore and protect habitat for the endemic Montara Mountain blue bush lupine (*Lupinus eximus*) and other native species by eradicating French broom (*Genista monspessulana*) from POST's Gregerson property. Sporadic occurrences of jubata (Pampas) grass (*Cortaderia jubata*), gorse (*Ulex europaeus*) and poison hemlock (*Conium maculatum*) will also be eradicated.

What are the project's long-term benefits and/or region-wide positive impacts:

Montara Mountain is home to several endemic plants, including the Montara Mountain blue bush lupine (MBL). POST's recently acquired Gregerson property, on the southern flanks of Montara Mountain, features the Montara Mountain granite that supports the communities in which these endemic plants survive. Due to past human use and the establishment and spread of exotic invasive plants, however, these native plant communities have been impacted. The treatment area of the Gregerson property had been used as pasture for horses for several years, before being left fallow in 2006. Since that time, French broom has begun an aggressive colonization of the area. Exotic invasives Pampas grass, poison hemlock, and even a small patch of gorse have also found their way into the area. Despite this, the endemic Montara Mountain blue bush lupine has been documented returning to this area as well. It is, however, facing an uphill battle against competing invasives. If left untreated, French broom will likely come to dominate the entire area, forming a monoculture that will make it all but impossible for the Montara Mountain blue bush lupine and other natives to survive. With effective treatment, MBL, other Montara Mountain endemics, and other native plants will be able to thrive in this unique natural community.

Work to date:

In spring 2008 POST hired Go Native, Inc. to survey and perform an initial treatment on invasive plants on POST's recently acquired 200-acre Gregerson property. Go Native's survey showed a French broom infestation area of approximately 41 acres. Go Native mapped the infestation as Heavy, Moderate, or Scattered. The results were as follows (see attached map):

Heavy (>50% cover): 3.5 ac

Moderate (20 – 50% cover): 10.5 ac

Scattered (<20% cover): 27 ac

Significant populations of pampas grass, poison hemlock, and gorse are also noted on the map. The 6 gorse plants discovered had not previously been expected to occur on the site.

In the first phase of treatment, Go Native focused on minimization of new seed being produced this growing season, containment of infestation, and elimination of out-lying populations. Heavy and most moderate density areas were mowed with a brush-cutter attachment on a TB-170 rubber-tracked excavator. Remaining areas of mature plants were either pulled manually with a weed wrench or cut at the base and stump-treated with a 50% solution of RoundUp (glyphosate). New seedlings in most areas were treated with a foliar spray of a 4% RoundUp solution. The small gorse population was also manually uprooted with weed wrenches.

Because of time and budget restrictions, a 5.6 ac area at the southern end of the property was not treated. This bowl-shaped area is bounded by the residence road, heavy brush, and forest, and was considered to be somewhat

contained for the time being.

POST volunteer crews have also spent 40 hours treating poison hemlock and pampas grass. Forty additional hours of volunteer treatment work are scheduled for summer and fall of 2008, with additional hours expected in 2009.

Proposed next steps:

The remainder of mature plants at the southern end of the property will need to be treated to effectively eliminate all French broom on the property.

Additionally, the stumps from the large plants cut in the treated areas will re-sprout, and will soon develop sufficient foliage for effective treatment with a foliar spray treatment of 4% RoundUp. French Broom has a very persistent seedbank that can remain viable for decades – with the targeted successful removal of existing mature plants this year, new seedlings can be effectively treated with herbicide foliar sprays in coming years.

Funding is currently not available for continued treatment. While volunteers will help to slow the invasion, significant work by contractor is vital to succeed in eradicating these invasives from the property.

Equipment:

Contractors will utilize a brush-cutter attachment on a TB-170 rubber-tracked excavator, backpack sprayers, weed wrenches, loppers, and personal safety gear for treatment.

Volunteers will utilize a truck-mounted tank and power sprayer, backpack sprayers, weed wrenches, loppers, and personal safety gear for treatment.

Mapping:

See attached map for current weed locations. All areas with infestations were manually treated in the initial phase in 2008, with the exception of the area marked in blue cross-hatching.

All areas treated and surveyed will be displayed on a map that will be submitted to all WMA partners and CDFA at the completion of the project.

Reporting:

A project report will be submitted at the completion of the contract and will include the following information: net acres or number of plants treated if less than 100 plants, gross area surveyed, control tool utilized, % change (reduction) between visits, graphs showing differences in acres treated between years for each species addressed, and photographs.